



UPDATING PROGRAM TRACKING DATA WITH NEW ESTIMATED UNIT SAVINGS – PEB UPDATE

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TABLE OF CONTENTS

1	INTRODUCTION – PURPOSE OF THE UPDATE	1
2	INTERIM DATABASE DATA FLOW DESCRIPTION.....	1
3	DATA NEEDED TO MAP TO DEER 06-07	3
4	STATUS OF THE TRACKING DATA	4
	Combined Table.....	4
	DEER Run IDs.....	5
5	DEVELOPING THE COMBINED TABLE	5
6	METHODOLOGY FOR DOING DEER 06-07 LOOKUPS.....	7
6.1	Choose Measures to Target	7
6.2	Create Lookup Tables.....	7
6.2.1	Building Type Lookup Table.....	7
6.2.2	Climate Zone Lookup Table.....	8
6.2.3	DEER Technology ID Lookup Table.....	9
6.2.4	Measure Units Lookup Table.....	Error! Bookmark not defined.
6.2.5	DEER 06-07 Impacts Lookup Table.....	11
6.3	Create Mapping logic.....	12
6.3.1	Realization Rates.....	13
6.3.2	Special Cases for Upstream Measures	Error! Bookmark not defined.
6.3.3	Develop and Run SAS Code	13
6.4	Run Update and Analyze Results	13
7	RESULTS - UPDATED INTERIM DATABASE	14
	APPENDIX A	1

1 INTRODUCTION – PURPOSE OF THE UPDATE

The main purpose of this task was to add updated Estimated Unit Savings (UES) values for energy, demand, and gas savings to program tracking data for the 21 programs being evaluated. In addition, several other tasks were carried out as part of the update process, including the development of a standard-format tracking database for all of the 21 programs – known as the Interim Database.

The main data inputs that were used for this task were:

- Program tracking data for all of the 21 programs, provided by the contract groups that are evaluating those programs;
- DEER 06-07 database (version 2008.02.04, which contains savings values both with interactive effects and without interactive effects), accessed with an interface program called MISer, both provided by JJ Hirsch and Associates;
- Zip code to climate zone maps, from the CPUC; and
- NAICS codes tables, from NAICS.

2 INTERIM DATABASE DATA FLOW DESCRIPTION

The following fields in Table 2-1 are outputs of the Interim Database based on the Combined Table inputs listed in Section 5. The fields are defined in the VRT field definition section.

Table 2-1. List of Interim Database Output Fields

VRT Naming Convention
EDDEERUpdateMapped
EDProgramID
EDUpdatedClimateZone
EDUpdatedBuildingType
EDDEERUnitConversion
EDDEERTechnologyID
EDDEERVintage
EDDEERUnits
EDDEERImpactID
EDDEERExanteGrUnitUESavkWh
EDDEERExanteGrUnitUESavkW
EDDEERExanteGrUnitUESavTherms
EDRealizationRate
EDThermsPerUnit

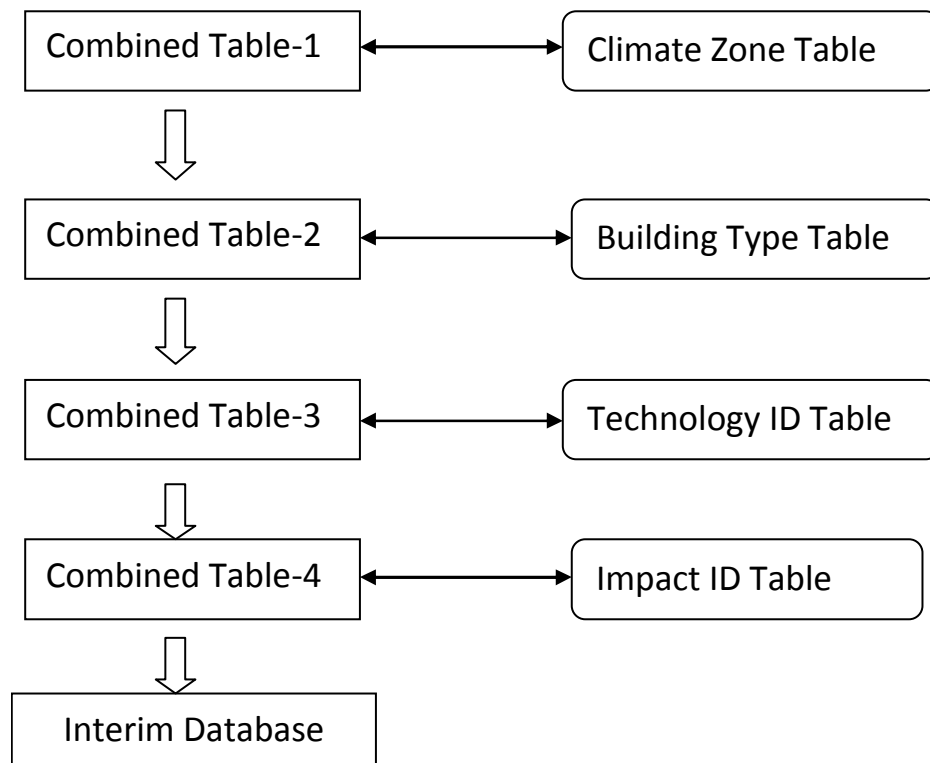
The Interim DB output is essentially a table that contains updated unit kW, kWh and therm DEER 06-07-based savings for ex ante data and all related fields. To facilitate a lookup of DEER 06-07 savings, the

tracking data needed to be mapped to the measure properties used in DEER. To assign updated DEER 06-07 per unit savings values to program tracking data, the following fields are necessary:

- Sector (NonRes/Res)
- DEER building type
- DEER climate zone
- DEER base technology (Always customer average)
- DEER Technology ID
- IOU Program Tracking Measure Description/Description Alternate

To obtain these fields, three lookup tables were constructed. The flow of data through this process is shown in Figure 2-1 below.

Figure 2-1. Data Flow Diagram Showing How the Data Collected from all Contract Groups is processed for the VRT.1



As shown in the data flow diagram, there are four steps in this process before an Interim Database is created. These steps are outlined briefly below, with detailed descriptions in section 6.2.

¹ As the combined table is processed using the various lookups, its name is adjusted to denote each subsequent change. For Eg. Combined Table-1, Combined Table-2 etc.

1. Step 1- The aim of this step is to append DEER climate zones to the combined table. To do this, the zip code, Utility and Program ID were used. The Climate Zone mapping logic is defined in Section 6.2.2.
2. Step 2 – A DEER building type is assigned to every line item based on the Program Tracking building type, NAICS, Program, and Program Element. The DEER Building type is populated using assumptions outlined in Section 6.2.1.
3. Step 3- A Technology ID² is assigned to measures in the database that constitute a significant gross savings, only when the Measure Description readily maps to a DEER 06-07 Measure Description .³ This is done using Measure Description, Measure Description Alternate, Sector (Res or Non Res) and the units of that particular measure.
4. Step 4- An Impact ID⁴ is assigned to measures that get assigned an appropriate Technology ID, DEER building type, and DEER Climate zone. The final table is called the Interim Database and contains the looked-up UES values defined in Section 2-1.

Once impact ID's (and subsequent UESs) are assigned to measures and appended to the Combined Table, the Interim Database is then passed on to the VRT. The following sections describe this process in detail.

3 DATA NEEDED TO MAP TO DEER 06-07

The DEER 06-07 format requires several fields to be known in order to select the correct savings values:

1. Measure description;
2. Measure units;
3. Measure base case;
4. Climate zone;
5. Building vintage; and
6. Building type.

Several assumptions had to be made to map tracking data to DEER, as there was insufficient data in the tracking database when compared to the level of detail in DEER. For example, information about the base case was not given in tracking data. In addition, as DEER 06-07 did not contain a full list of measures at the time of doing this task, several assumptions were made about which program measures would be targeted for the DEER mapping. The assumptions used were:

- All measures were assumed to have a base case of “Customer Average.”

² Technology ID is an identification key for a specific technology implemented in a particular sector. For example, all 18 W CFL's in the residential sector will have the same Technology ID.

³ See Section 0 for details.

⁴ See Section **Error! Reference source not found.** for details.

- All buildings were assumed to have the average building vintage for the utility – SDGE Existing, PGE Existing, SCG Existing or SCE Existing (these were provided as vintage categories in DEER 06-07).
- No tracking lines with building type “residential multi-family” were targeted for mapping to DEER, as DEER does not currently contain any values for multi-family installations.
- Only measures that are included in the latest version of DEER 06-07 were included as possible measures to be mapped. Several measure groups represented in the tracking data are not yet included in DEER 06-07, such as exterior lighting. Currently, DEER 06-07 contains the following major categories of measures, as exhibited in Table 3-1.
- For line items that could not be assigned a particular DEER Building type based on NAICS code or Program Tracking building description, program information was used to either assign a default or a weighed DEER building type.

Table 3-1: Major Categories of Measures in DEER 06-07

Non-residential	Residential
<p><u>HVAC</u></p> <p>Duct sealing</p> <p>Air-cooled split/package AC</p> <p>Chillers</p> <p>Refrigerant Charge</p> <p><u>Indoor Lighting</u></p> <p>CFLs</p> <p>Exit Lighting</p> <p>Linear Fluorescent</p> <p>Other Lighting</p>	<p><u>HVAC</u></p> <p>Air Conditioners</p> <p>Furnaces</p> <p>Refrigerant and duct sealing</p> <p><u>Indoor Lighting</u></p> <p>CFLs</p> <p><u>Appliances</u></p> <p>Refrigerators/Freezers</p> <p>Recycling of Refrigerators/Freezers</p> <p><u>Water Heating</u></p> <p>Small instantaneous</p> <p>Small storage</p>

4 STATUS OF THE TRACKING DATA

Summit Blue analyzed the tracking data to determine the availability of required fields for the mapping to DEER.

Combined Table

The tracking data was first organized into a Combined Table (Table 4-1). The table has 1.99 million line items, representing the installation of 106 million measure units. More details of the combined table by program are given in the Appendix.

Table 4-1: Basic Statistics on Combined Table

IOU	Count of Lines	Count of Measures	Ex Ante Gross Savings kWh	Ex Ante Gross Savings kW	Ex Ante Gross Savings therms
PGE	671,618	52,448,510	1,727,359,148	280,133	26,460,069
SCE	1,125,937	28,505,508	2,027,724,133	285,436	-
SCG	74,188	12,249,587	2,617,354	1,288	26,052,688
SDGE	118,651	13,215,678	513,433,142	76,576	3,418,018
Total	1,990,394	106,419,282	4,271,133,776	643,432	55,930,774

DEER Measure/Run IDs

Some of the tracking data had DEER Run IDs or DEER Measure IDs that could be used to map to DEER 06-07. Table 4-2 shows the number of line items in the tracking data that had valid DEER Run IDs (from DEER 05) or valid DEER Measure IDs. In certain cases, detailed in Section 6.2.3, the tracking DEER Run/Measure IDs were used to look-up DEER 06-07 Technology IDs

Table 4-2: Count of DEER Run IDs and DEER Measure IDs in Tracking Data

Utility	Line Items with DEER Run ID	% Of line items with DEER Run ID	Line Items with DEER Measure ID	% of Line Items with DEER Measure ID	Total Line Items
SCE	84,121	8%	-	0%	1,041,774
SCG	60,085	85%	69,675	98%	70,985
SDGE	59,026	50%	59,026	50%	118,651
PGE	-	0%	192,824	29%	671,618
Totals	203,232	11%	321,525	17%	1,903,028

5 DEVELOPING THE COMBINED TABLE

The Combined Table represents the first cross-IOU view of the 2006-2007 tracking data. The DEER Rules team specified several fields that would be necessary to map measure-level tracking line items to DEER 06-07; these fields are listed below in Section (a).

Four contract groups were responsible for populating the Combined Table with program tracking data. Generally, contract groups populated data for the programs on which they performed the verification study, where the data structure had been worked with previously. In some cases (PG&E and SEMPRA), where the data structure is consistent across the entire IOU, a single contract group was responsible for all programs within an IOU. The contract groups and the programs for which they were responsible are listed in Table 5-1.

Table 5-1. Contract Group Combined Table Data Responsibilities

Contract Group	Responsible Program(s)
SBW	all SEMPRA, SCE2517
Summit Blue	all PG&E
Cadmus	SCE2501, 2502, 2503
ITRON	SCE2511

a. Data Requirements Specification

All pertinent tracking-level data necessary to map a measure to DEER 06-07 was collected using the fields listed below, in Table 5-2. The VRT Naming Convention was used for the field names, and the fields are defined in the VRT field definition section. In some cases, an IOU uses several fields to define a data concept (i.e., measure description, DEER Run ID, etc.), so multiple Combined fields were necessary to get the required data. The IOU tracking data quality was highly variable for these fields, so additional analysis and scrubbing was accomplished in the lookup tables addressed later in the document.

Table 5-2. Tracking Data Fields Collected in Combined Table

VRT Naming Convention
EDProgramID
IOUPrgTrkMeaCode
IOUPrgTrkMeaName
IOUPrgTrkMeaNameAlternate
IOUPrgTrkDEERMeaID
IOUPrgTrkDEERRunID
IOUPrgTrkUnits
IOUPrgTrkZIPCode
IOUPrgTrkClimateZone
IOUPrgTrkBuildingTypeCode
IOUPrgTrkBuildingType
IOUPrgTrkSICCode
IOUPrgTrkSIC
IOUPrgTrkNAICSCode
IOUPrgTrkNAICS
IOUPrgTrkExAnteGrSavkW
IOUPrgTrkExAnteGrSavkWh
IOUPrgTrkExAnteGrSavTherms
IOUPrgTrkExAnteQuantity
IOUPrgTrkPaidDate
IOUPrgTrkProgramElement
IOUPrgTrkWorkPaperID

b. Data Import Process

The import process was iterative: Summit Blue imported the data from the various contract groups, QCed the data, sent back to the contract groups for QC, re-imported, etc. This was to ensure that the appropriate fields from the tracking data were being mapped to the Combined Table fields.

c. Primary Keys⁵

In addition to the fields listed above, additional primary key fields were imported on a program-by-program basis to ensure the outputs from the Interim Database could be mapped back to each Contract Group's data file. These fields are neither listed nor defined in this document; however, they do exist in the Interim DB.

6 METHODOLOGY FOR DOING DEER 06-07 LOOKUPS

6.1 Choose Measures to Target

We identified measures in the combined table that were included in the verification study by assigning each measure in the interim database to a measure group. The measure assignment strategy was consistent with the assignment strategy used to define the program/measure group combinations defined in the Verification Study Template. This strategy narrowed the scope of the lookup activity to programs and measures making up the bulk of the energy and demand savings claims. The high impact program/measure group combinations included in the study with their associated contract groups are shown in the Appendix, Table A-8.

Note: not all measures included in the verification study were included in the DEER 06-07 update. The DEER 06-07 update focused primarily on prescriptive lighting, appliances, HVAC and water heating measures. Custom measures, process measures and commercial refrigeration measures were not included. Once the targeted measures were selected, mapping of these measures to the DEER 06-07 update is described in section 6.2.3.

6.2 Create Lookup Tables

6.2.1 Building Type Lookup Table

The Building Type Lookup Table was used to map tracking building type data to a list of standard building types that are in DEER 06-07. There are 23 DEER building types that were used for the lookup of impact data. This list is given in Table A-3.

A table was created that maps all unique combinations of Tracking Building Type and Tracking NAICS code in the tracking data to a DEER building type. The existence of valid building type data varies considerably by program, as shown in Table A-2.

The building type lookup table was created with the following steps:

⁵ A primary key is a field or a combination of fields that makes each line item unique

1. Create a list of default building types for each program according to the program type (see above).
2. Create a map of Tracking Building Types to DEER Building Types by the following method:
 - Initially, only map tracking building types to DEER building types that are obviously related (e.g. Small Office would get mapped to Office – Small, but “Office” would not get mapped because it is not clear if it is a large or small office).
 - Create statistics on these “obvious” maps by program.
 - Review the tracking building types list again and map the remaining non-obvious types that have some indication of building type according to the mix of obvious maps in that program.
 - If the building type is obviously commercial but no commercial building type is given, assign a commercial weighted average building type by program. An average weighted commercial building type was created for the following programs: PGE2004, PGE2080, SCE2501, SCE2511, SCE2517, SCG3507, SCG3513, SDGE3010, SDGE3012, SDGE3020, SDGE3025, SDGE3028
3. Create a map of NAICS building codes to DEER Building Types. Do this by first shortening all NAICS codes to 4 digits, to get a higher level of categorization than the 6-digit code. Then look up the 4-digit code to obtain a NAICS building type from the list taken from the NAICS website (2002 version). Then assign DEER building types to the NAICS codes according to professional judgment.
4. Assign a DEER building type to each unique combination of tracking building type and NAICS code in the tracking data, according to the following logic:
 - If the Tracking Building Type can be mapped to a DEER Building Type, use that.
 - If not, if there is a valid NAICS value and it can be mapped to a DEER Building Type, use that.
 - If neither the Tracking Building Type nor the NAICS code can be mapped to a DEER Building Type, then use default for each program.

The results of the building type mapping are shown in Table A-4..

6.2.2 Climate Zone Lookup Table

A Climate Zone Lookup Table was created in order to map tracking data zip codes and climate zones to the list of standard climate zones that are in DEER 06-07. All unique combinations of zip code and climate zone that were in the original tracking data were mapped.

A table matching zip codes to climate zones was provided by SBW Consulting staff. The table includes the following fields: Zip code, City, Single CZ, Min CZ, Max CZ. The single CZ value is filled in if there is only one CZ in that zip code. If there is a range of CZs in one zip code, the min and max CZ fields are different.

The climate zone lookup table was created with the following steps:

1. Reformat valid zip codes from the tracking data to be numeric values between 90001 and 96162, stripping off extra characters and eliminating those not in range.
2. Reformat any valid climate zone values to be numeric values between 1 and 16, stripping off extra characters and eliminating any values that do not contain a valid climate zone value.
3. Enter a default climate zone for each program - PG&E Territory (Weighted), SCE Territory (Weighted), SCG Territory (Weighted), or SDG&E Territory (Weighted).
4. Look up reformatted zip codes in the SBW zip-CZ lookup table.
5. Produce final CZ by the following logic:
 - a. If there is a valid Single CZ for that zip code, use that one;
 - b. Else, if there is a valid tracking data CZ, use that;
 - c. Else, if there is a valid Max CZ for that zip code, use that;
 - d. Else, use the default CZ.

This exercise produced a high level of mapping, with only a small percentage of lines have the default CZ, as shown in Table A-5..

6.2.3 DEER Technology ID Lookup Table

The DEER Tech ID lookup table uses available information in the Combined Table to assign Technology ID's to line items in the database. This is accomplished using the measure description, sector, and savings units as given in the program tracking database. Specifically, the following actions were taken:

- All line items were grouped by measure description, units, utility, and sector.
- All measures (descriptions) were then arranged in descending order of gross energy (kWh) savings.
- The measures that constituted significant savings were first targeted. Generally, a measure was targeted if the total gross program tracking savings associated with the unique measure description constituted greater than 1% of the total IOU Portfolio savings.
- As long as the measure description was self-explanatory and the measure was included in the DEER 06-07 database (using reasonable assumptions), measures were mapped to a DEER Tech ID.
- The Technology ID lookup table then assigned a Technology ID to all applicable line items in the Combined table. This was done by linking the Combined table with the Technology ID table via Program ID, Measure Description, Measure Description Alternate, and Sector.

- To insure that the per unit savings updated from DEER have the same units as the program tracking data, a multiplier was used. This multiplier is called the Unit Conversion Factor. For example, DEER reports annual savings for furnace as "Therms/kBtuh", whereas program tracking data reports annual savings as "per furnace". In case of a 72 kBtuh furnace, a multiplier of 72 was applied to the DEER per unit savings figure to resolve this difference in units. No change was made to the program tracking data, only DEER per unit savings were adjusted when necessary to match tracking data units.
- The fields added to the Interim DB are EDDEERTechnologyID, EDDEERUnitConversion and EDDEERBaseTechnology.⁶
- Once line items have been assigned a Technology ID, DEER Building type, and a DEER climate zone, they are then ready to be assigned Impact ID's. Each DEER 06-07 Impact ID corresponds to DEER UES values, which is explained in detail in the following section.

6.2.3.1 IOU Equity Addressed by DEER Technology ID Lookup Table

After manually assigning Technology ID's to line items by the methods above, it was seen that, for SEMPRA measures, Technology IDs could only be assigned to line items whose total gross claimed savings constituted less than 10 percent of SEMPRA's total claimed savings. This is largely due to the fact that DEER 06-07 does not include the gas measures that make up a large percentage of SEMPRA claimed savings. Conversely, in the case of SCE and PG&E, measures constituting upwards of 40 percent of total energy savings were assigned a Technology ID. Additionally, it was noted that in many cases SEMPRA provided well-populated tracking data for DEER Measure and DEER Run ID's. Therefore, to address the inequity of Technology ID assignment (and ultimately inequity of DEER UES updates) SEMPRA-reported DEER 05 Measure and Run IDs were used to look up DEER 06-07 Tech IDs.

The DEER 2008 Database Description provides a partial DEER 05 RunID/TechID to DEER 06-07 TechID lookup table (DEER2008 Database Description (version 2b).xls). For the SEMPRA measures addressed in Section 4 above, whenever a DEER 05 Run ID and Measure ID combination was provided in the tracking data, this lookup was used to obtain a DEER 06-07 Technology ID. When both the DEER05 RunID and DEER05 MeasureID mapped to a corresponding DEER 06-07 Tech ID via this lookup table, a DEER 06-07 TechID was assigned. Some TechID's assigned via this lookup, however, have not yet been incorporated into the current version of DEER 06-07. In this case, the measure would be assigned a Tech ID, but would not be assigned an Impact ID and, thus, would not receive updated DEER UES values.

⁶ Base Technology was set to customer average for all measures.

6.2.4 DEER 06-07 Impacts Lookup Table

The MISer program was used to extract essential data on all measures in the latest version of DEER 06-07. This data was then formatted into a lookup table to be used to look up updated UES values. DEER 06-07 contains savings calculated both with interactive effects and without interactive effects for lighting and other measures such as refrigeration. For the purpose of the UES update, the savings values without interactive effects were used. A version of the UES update was also done for the values with interactive effects, as a reference.

The Impacts Lookup table contained only the essential fields needed to match tracking data line items to DEER: IOU, Measure Description, Technology ID, Impact ID, Load Shape ID, Climate Zone, Base case, Building Type, Vintage, Energy Common Units description, Impact per unit - kWh, Impact per unit - kW, Impact per unit – therms.

Weighted Average Additions

Several types of weighted average savings values were added to the original DEER impact data to accommodate the tracking lines that did not have specific enough data to match to DEER directly. Each of the weighted averages was done for all of the climate zones for which the data existed in DEER. These weighted average lines were then added to the original data in the Impacts Lookup table.

1. Residential Refrigerator/Freezer Recycling Weighted Averages

As there was insufficient detailed data in the tracking data to map to specific DEER residential refrigeration/freezer recycling measures, a weighted average for each basis type of measure (freezer or refrigerator) was developed. The weightings used are as follows⁷:

Table 6-2: Residential Refrigerator/Freezer Recycling Weights

Measure Description	Weights	
	Freezer	Refrigerator
Remove and recycle freezer in conditioned space	1.3%	
Remove and recycle freezer in unconditioned space	11.9%	
Replace and recycle freezer in conditioned space	2.6%	
Replace and recycle freezer in unconditioned space	23.7%	
Remove and recycle second refrigerator in conditioned space		9.6%
Remove and recycle second refrigerator in unconditioned space		3.6%
Replace and recycle second refrigerator in conditioned space		19.2%
Replace and recycle second refrigerator in unconditioned space		7.1%
Zero Savings	60.5%	60.5%
Total	100%	100%

Two new Tech IDs for the weighted average values (freezers and refrigerators) were generated and added to the Tech ID lookup table, so that the tracking data line items with residential refrigeration recycling measures mapped to the new weighted Tech IDs.

2. Commercial Building Type Weighted Averages

⁷ Weighting data taken from the report *Evaluation Study of 2004 to 2005 Statewide Residential Appliance Recycling Program* (ADM Associates, Athens Research, Hiner and Partners, and Innovologie LLC), April 2008.

For commercial measure lines that did not have a specific commercial building type (e.g. Office – Small), a weighted average commercial building type was created. This was done for each climate zone that existed for the IOU in the DEER data (not all CZs are given in DEER for all IOUs).

The weighted averages were done by program, and only for the measures that were being targeted for mapping to DEER in that program. The weightings were based on the mix of known commercial building types in that program. The weightings that were used are given in A-5.

3. Upstream Commercial Lighting Measures Weighted Averages

For commercial upstream lighting measures in PGE2080 and SCE2501, weighted average savings values were created that reflect the likely mix of commercial buildings the measures were installed in. The commercial weightings used are: one third each of Retail – Small, Office – Small, and Restaurant - Sit-Down⁸. These weighted averages were created for all of the upstream measures in these two programs, as shown in Table .

Table 6-3: Measures with Upstream Lighting Commercial Building Type Weighted Averages

CFL, 11W lamp, Integral or Modular, Tube or Spiral or Flood
CFL, 13W lamp, Integral or Modular, Tube or Spiral or Flood
CFL, 15W lamp, Integral or Modular, Tube or Spiral or Flood
CFL, 18W lamp, Integral or Modular, Tube or Spiral or Flood
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood
CFL, 23W lamp, Integral or Modular, Tube or Spiral or Flood
CFL, 25W lamp, Integral or Modular, Tube or Spiral or Flood

The following logic was used in assigning the upstream lighting commercial weighted building types:

a. SCE2501 Upstream Lighting

The SCE2501 Upstream program element consists entirely of upstream lighting measures. The tracking data was delivered to the Combined table with line items disaggregated by Sector (Res/Non Res). The Res Upstream Lighting measures were mapped to the “Residential – Single Family” EDBLDGTYPE, while the Non-Res line items were mapped to “AVERAGE BLDGTYPE – SCE2501 UPSTREAM LIGHT,” which is the Non-Res Upstream Lighting special case building type.

b. PGE2080 Upstream Lighting

The PGE2080 Upstream program element contains upstream lighting measures, as well as other upstream measure types. PGE2080 is a non-residential program, so all upstream lighting line items were assigned the “AVERAGE BLDGTYPE – PGE2080 UPSTREAM”, again the Non-Res Upstream Lighting special case building type.

⁸ Weightings came from the document *Work Paper WPSCRELG0022, Revision 0, Integral (Screw-In) Compact Fluorescent Lamp (CFL) – Non-Residential*, Southern California Edison Company Design & Engineering Services, September 2007.

6.3 Create Mapping logic

6.3.1 Realization Rates

Since the 06-07 DEER update study focused only on a subset of the prescriptive measures targeted by verification study, realization rate adjustments were developed for additional measures not included in the DEER update. Realization rates from past Standard Performance Contract (SPC) program evaluations were compiled and analyzed by ED staff. An overall realization rate of 0.79 for kWh, kW and therm savings was developed from this analysis. This adjustment was applied to custom and process measures similar to those covered by the prior SPC evaluations.

The tracking data supplied by each contract group contained a field indicating a program element within each program. We identified the program elements within each program that addressed custom and/or process measures. The list of unique program and program element combinations present in the interim combined database, along with the default realization rate adjustment, is shown in the Appendix, Table A-9.

Measures subject to this adjustment within the Interim Database were identified, but the realization rate adjustment was not applied as part of this analysis. Final realization rate adjustments were made by each contract group in their respective verification report templates (VRT).

6.3.2 Develop and Run SAS Code

Due to the high level of data complexity, as well as the large number of line items and table relationships, the entire Interim Database, including all lookups and additional code, was modeled using SAS. SAS provided additional debugging capability, as well as the flexibility to reuse code as requirements changed throughout the process (i.e., interactive vs. non-interactive numbers).

6.4 Run Update and Analyze Results

The Interim Database results were analyzed and extensively quality controlled before they were sent for the VRT update. Specifically, the following actions were performed:

- It was ensured that every line item was updated with correct DEER Building types and DEER climate zones.
- All measures that had an Impact ID assigned, or measures having weighted Tech IDs along with the other appropriate credentials specified in the Impact ID Lookup Table were assigned per unit savings. These were compared with per unit savings as claimed by the IOU.
- All line items that had either very high or very low updated savings with respect to IOU program tracking data were manually checked for possible errors.

Along with the above measures, a thorough check on the database was done by making queries, summaries and manually going through certain sampled measures. Once the database was thoroughly scrutinized, it was then deemed ready for the VRT update.

7 RESULTS - UPDATED INTERIM DATABASE

The interim database was updated using the SAS code and lookup tables described in section 6, to include DEER 06-07 non-interactive savings values for the targeted measures. Wherever a match between tracking and DEER was possible, the new value was added into the columns labeled ED DEER Ex ante Gr Unit UESav (kWh, kW and therms).

A summary of the results of the UES lookup operation is presented in Table 3. Where a change in savings is shown, this implies that the new UES values would be used in place of the original tracking database savings.

Table 3: Change in Savings due to UES Update by Program

Program	Database Lines Not Updated	Database Lines Updated	% Updated	Change in kWh	Change in kW	Change in Therms
PGE2000	568,974	29,811	5.0%	-4.5%	-13.1%	0.0%
PGE2004	668		0.0%	0.0%	0.0%	0.0%
PGE2080	55,828	16,337	22.6%	-13.7%	-9.0%	0.0%
SCE2500	268	123,242	99.8%	-81.5%	-83.4%	0.0%
SCE2501	104,907	26,548	20.2%	-11.7%	-10.1%	0.0%
SCE2502	694,615		0.0%	0.0%	0.0%	0.0%
SCE2511	30,301	124,700	80.5%	-35.7%	-28.2%	0.0%
SCE2517	19,928	1,428	6.7%	-3.4%	-4.7%	0.0%
SCG3507	3,203		0.0%	0.0%	0.0%	0.0%
SCG3510	1,055		0.0%	0.0%	0.0%	0.0%
SCG3513	437		0.0%	0.0%	0.0%	0.0%
SCG3517	62,959	6,534	9.4%	0.0%	0.0%	0.6%
SDGE3010	881		0.0%	0.0%	0.0%	0.0%
SDGE3012	918	141	13.3%	-10.2%	-9.4%	0.0%
SDGE3016	739	1,623	68.7%	-15.8%	-7.2%	0.0%
SDGE3017	2,235		0.0%	0.0%	0.0%	0.0%
SDGE3020	13,454	9,617	41.7%	-25.3%	-23.0%	0.0%
SDGE3024	38,492	2,134	5.3%	0.0%	0.0%	10.6%
SDGE3025	277		0.0%	0.0%	0.0%	0.0%
SDGE3028	23,541		0.0%	0.0%	0.0%	0.0%
SDGE3035	24,599		0.0%	0.0%	0.0%	0.0%
Portfolio	1,648,279	342,115	17.2%	-12.5%	-13.4%	0.1%

Full details of the changes in savings for each measure ID by program are given in Table A-7.

APPENDIX A

Table A-1. Basic Statistics on Tracking Data

Program	Count of Lines	Count of Measures	Ex Ante Gross Savings kWh	Ex Ante Gross Savings kW	Ex Ante Gross Savings therms
PGE2000	598,785	43,606,950	880,164,762	120,431	3,816,859
PGE2004	668	668	129,644,096	15,731	17,145,818
PGE2080	72,165	8,840,892	717,550,290	143,971	5,497,391
SCE2500	123,510	127,375	2,337,694	446	-
SCE2501	131,455	24,351,211	1,268,685,025	163,732	-
SCE2502	694,615	1,294,515	3,556,409	323	-
SCE2511	155,001	1,066,470	198,132,176	35,342	
SCE2517	21,356	1,665,936	555,012,829	85,594	-
scg3507	3,203	71,215	-	-	14,464,977
scg3510	1,055	90,999	14,539	9	1,423,357
scg3513	437	776	-	-	9,420,474
scg3517	69,493	12,086,597	2,602,814	1,278	743,880
sdge3010	881	48,288	73,572,169	12,154	1,398,562
sdge3012	1,059	2,551,984	39,502,075	6,872	528,435
sdge3016	2,362	5,762,161	219,419,061	18,845	-
sdge3017	2,235	301,733	11,479,846	3,829	459,425
sdge3020	23,071	1,697,081	148,272,833	30,532	642,637
sdge3024	40,626	2,777,832	2,038,960	1,460	128,507
sdge3025	277	-	18,294,435	2,746	252,768
sdge3028	23,541	23,541	510,006	88	-
sdge3035	24,599	53,058	343,757	48	7,685
Grand Total	1,990,394	106,419,282	4,271,133,776	643,432	55,930,774

Table A-2. Availability of Building Type Data in Tracking Data

Program	% Lines with Valid Building Type	% Lines with Valid NAICS	Program Res/Non Res	Default building type
PGE2000	92%	0.0%	Res	Residential - Single Family
PGE2004	0%	59.4%	C&I	Average BldgType - PGE2004
PGE2080	5%	50.2%	C&I	Average BldgType - PGE2080
SCE2500	100%	0.0%	Res	Residential - Single Family
SCE2501	86%	0.0%	Res	Residential - Single Family
SCE2502	0%	0.0%	Both	Residential - Multi-Family
SCE2511	68%	43.3%	C&I	Average BldgType - SCE2511
SCE2517	80%	0.0%	C&I	Average BldgType - SCE2517
scg3507	14%	99.3%	C&I	Average BldgType - SCG3507
scg3510	0%	0.0%	Res	Residential - Multi-Family
scg3513	26%	100.0%	C&I	Average BldgType - SCG3513

scg3517	100%	0.0%	Res	Residential - Single Family
sdge3010	9%	74.6%	C&I	Average BldgType - sdge3010
sdge3012	17%	97.6%	C&I	Average BldgType - SDGE2012
sdge3016	100%	17.0%	Res	Residential - Single Family
sdge3017	0%	0.0%	Res	Residential - Multi-Family
sdge3020	19%	93.4%	C&I	Average BldgType - SDGE3020
sdge3024	100%	0.0%	Res	Residential - Single Family
sdge3025	13%	72.2%	C&I	Average BldgType - sdge3025
sdge3028	0%	0.0%	Res	Residential - Single Family
sdge3035	100%	0.0%	Res	Residential - Double-Wide Mobile

Table A-3. DEER Building Types

Assembly
Education - Community College
Education - Primary School
Education - Secondary School
Education - University
Grocery
Health/Medical - Hospital
Health/Medical - Nursing Home
Lodging - Hotel
Lodging - Motel
Manufacturing - Bio/Tech
Manufacturing - Light Industrial
Office - Large
Office - Small
Residential - Double-Wide Mobile
Residential - Single Family
Restaurant - Fast-Food
Restaurant - Sit-Down
Retail - Multistory Large
Retail - Single-Story Large
Retail - Small
Storage - Conditioned
Storage - Unconditioned

Table A-4. DEER Building Type by Program – Percentage of Line Items in Program

Program	Building Type	% of lines in Program
PGE2000	Residential - Multi Family	8.3%
PGE2000	Residential - Single Family	91.7%
PGE2004	Assembly	0.3%
PGE2004	Average BldgType - PGE2004	40.6%
PGE2004	Manufacturing - Light Industrial	21.9%
PGE2004	Office - large	32.8%
PGE2004	Office - Small	0.7%
PGE2004	Retail - Small	1.8%
PGE2004	Storage - conditioned	0.6%
PGE2004	Storage - Unconditioned	1.3%
PGE2080	Assembly	2.7%
PGE2080	Average BldgType - PGE2080	48.5%
PGE2080	Education - Community College	0.3%
PGE2080	Education - Primary School	0.6%
PGE2080	Education - Secondary School	11.4%
PGE2080	Education - University	0.2%
PGE2080	Grocery	2.2%
PGE2080	Health/Medical - Hospital	0.3%
PGE2080	Health/Medical - Nursing Home	0.1%
PGE2080	Lodging - Hotel	0.5%
PGE2080	Lodging - Motel	2.2%
PGE2080	Manufacturing - Light Industrial	3.2%
PGE2080	Office - large	3.7%
PGE2080	Office - Small	7.7%
PGE2080	Restaurant - Fast-Food	1.9%
PGE2080	Restaurant - Sit-Down	1.3%
PGE2080	Retail - Multistory Large	0.4%
PGE2080	Retail - Single-Story Large	1.2%
PGE2080	Retail - Small	5.4%
PGE2080	Storage - conditioned	2.5%
PGE2080	Storage - Unconditioned	3.7%
SCE2500	Residential - Single Family	100.0%
SCE2501	Residential - Single Family	86.4%
SCE2501	Average BldgType - SCE2501	13.6%
SCE2502	Residential - Multi Family	100.0%
SCE2511	Assembly	1.7%
SCE2511	Average BldgType - SCE2511	11.9%
SCE2511	Education - Community College	1.6%
SCE2511	Education - Secondary School	0.1%
SCE2511	Grocery	7.5%
SCE2511	Lodging - Motel	0.2%

Program	Building Type	% of lines in Program
SCE2511	Manufacturing - Light Industrial	0.9%
SCE2511	Office - large	0.5%
SCE2511	Office - Small	18.8%
SCE2511	Restaurant - Fast-Food	5.6%
SCE2511	Restaurant - Sit-Down	5.1%
SCE2511	Retail - Multistory Large	0.0%
SCE2511	Retail - Single-Story Large	5.7%
SCE2511	Retail - Small	40.2%
SCE2511	Storage - Unconditioned	0.1%
SCE2517	Average BldgType - SCE2517	19.8%
SCE2517	Education - Primary School	2.2%
SCE2517	Education - Secondary School	1.1%
SCE2517	Education - University	0.4%
SCE2517	Grocery	6.1%
SCE2517	Health/Medical - Hospital	1.4%
SCE2517	Health/Medical - Nursing Home	0.1%
SCE2517	Lodging - Hotel	2.0%
SCE2517	Lodging - Motel	1.5%
SCE2517	Manufacturing - Light Industrial	17.3%
SCE2517	Office - large	3.2%
SCE2517	Office - Small	12.6%
SCE2517	Restaurant - Fast-Food	4.3%
SCE2517	Restaurant - Sit-Down	8.3%
SCE2517	Retail - Single-Story Large	2.9%
SCE2517	Retail - Small	9.4%
SCE2517	Storage - conditioned	1.2%
SCE2517	Storage - Unconditioned	6.3%
scg3507	Assembly	0.8%
scg3507	Average BldgType - scg3507	0.2%
scg3507	Education - Community College	0.1%
scg3507	Education - Secondary School	1.5%
scg3507	Education - University	1.6%
scg3507	Grocery	0.0%
scg3507	Health/Medical - Hospital	0.2%
scg3507	Health/Medical - Nursing Home	0.4%
scg3507	Lodging - Motel	1.9%
scg3507	Manufacturing - Light Industrial	12.5%
scg3507	Office - large	1.3%
scg3507	Office - Small	1.4%
scg3507	Restaurant - Fast-Food	0.1%
scg3507	Restaurant - Sit-Down	1.6%
scg3507	Retail - Single-Story Large	0.0%

Program	Building Type	% of lines in Program
scg3507	Retail - Small	73.1%
scg3507	Storage - conditioned	0.7%
scg3507	Storage - Unconditioned	2.6%
scg3510	Residential - Double-Wide Mobile	0.1%
scg3510	Residential - Multi Family	99.7%
scg3510	Residential - Single Family	0.2%
scg3513	Assembly	3.2%
scg3513	Education - Secondary School	13.0%
scg3513	Education - University	0.7%
scg3513	Grocery	6.4%
scg3513	Health/Medical - Hospital	0.7%
scg3513	Health/Medical - Nursing Home	1.4%
scg3513	Lodging - Motel	4.8%
scg3513	Manufacturing - Light Industrial	22.2%
scg3513	Office - large	0.7%
scg3513	Office - Small	1.1%
scg3513	Restaurant - Fast-Food	15.3%
scg3513	Restaurant - Sit-Down	22.4%
scg3513	Retail - Small	3.2%
scg3513	Storage - conditioned	0.7%
scg3513	Storage - Unconditioned	4.1%
scg3517	Residential - Double-Wide Mobile	0.8%
scg3517	Residential - Single Family	99.2%
sdge3010	Assembly	2.5%
sdge3010	Average BldgType - sdge3010	23.7%
sdge3010	Education - Community College	0.2%
sdge3010	Education - Secondary School	2.0%
sdge3010	Education - University	0.5%
sdge3010	Grocery	10.0%
sdge3010	Health/Medical - Hospital	0.5%
sdge3010	Lodging - Motel	1.1%
sdge3010	Manufacturing - Light Industrial	8.6%
sdge3010	Office - large	21.6%
sdge3010	Office - Small	13.6%
sdge3010	Restaurant - Fast-Food	1.9%
sdge3010	Restaurant - Sit-Down	1.6%
sdge3010	Retail - Multistory Large	0.2%
sdge3010	Retail - Single-Story Large	1.5%
sdge3010	Retail - Small	5.9%
sdge3010	Storage - conditioned	1.2%
sdge3010	Storage - Unconditioned	3.3%
sdge3012	Assembly	4.4%

Program	Building Type	% of lines in Program
sdge3012	Education - Community College	0.1%
sdge3012	Education - Secondary School	21.2%
sdge3012	Education - University	1.9%
sdge3012	Grocery	27.5%
sdge3012	Health/Medical - Hospital	0.4%
sdge3012	Health/Medical - Nursing Home	0.7%
sdge3012	Lodging - Motel	5.1%
sdge3012	Manufacturing - Light Industrial	13.3%
sdge3012	Office - large	2.3%
sdge3012	Office - Small	7.3%
sdge3012	Restaurant - Fast-Food	0.8%
sdge3012	Restaurant - Sit-Down	5.0%
sdge3012	Retail - Multistory Large	0.7%
sdge3012	Retail - Single-Story Large	0.9%
sdge3012	Retail - Small	4.7%
sdge3012	Storage - conditioned	1.0%
sdge3012	Storage - Unconditioned	2.8%
sdge3016	Residential - Single Family	100.0%
sdge3017	Residential - Multi Family	100.0%
sdge3020	Assembly	4.0%
sdge3020	Average BldgType - SDGE3020	0.9%
sdge3020	Education - Community College	0.9%
sdge3020	Education - Primary School	0.4%
sdge3020	Education - Secondary School	1.1%
sdge3020	Education - University	0.1%
sdge3020	Grocery	4.8%
sdge3020	Health/Medical - Hospital	0.3%
sdge3020	Health/Medical - Nursing Home	0.1%
sdge3020	Lodging - Motel	0.3%
sdge3020	Manufacturing - Light Industrial	13.2%
sdge3020	Office - large	3.3%
sdge3020	Office - Small	26.0%
sdge3020	Restaurant - Fast-Food	5.3%
sdge3020	Restaurant - Sit-Down	3.1%
sdge3020	Retail - Multistory Large	0.0%
sdge3020	Retail - Single-Story Large	5.7%
sdge3020	Retail - Small	24.6%
sdge3020	Storage - conditioned	0.9%
sdge3020	Storage - Unconditioned	5.0%
sdge3024	Residential - Double-Wide Mobile	1.4%
sdge3024	Residential - Single Family	98.6%
sdge3025	Assembly	2.9%

Program	Building Type	% of lines in Program
sdge3025	Average BldgType - sdge3025	23.8%
sdge3025	Education - Secondary School	1.8%
sdge3025	Health/Medical - Hospital	2.2%
sdge3025	Health/Medical - Nursing Home	0.7%
sdge3025	Lodging - Motel	3.2%
sdge3025	Manufacturing - Light Industrial	11.2%
sdge3025	Office - large	7.9%
sdge3025	Office - Small	6.5%
sdge3025	Restaurant - Fast-Food	14.1%
sdge3025	Retail - Multistory Large	10.8%
sdge3025	Retail - Single-Story Large	4.0%
sdge3025	Retail - Small	8.3%
sdge3025	Storage - conditioned	1.4%
sdge3025	Storage - Unconditioned	1.1%
sdge3028	Average BldgType - sdge3028	100.0%
sdge3035	Residential - Double-Wide Mobile	100.0%

Table A-5. Final Climate Zone Maps by IOU (% of lines in Tracking Data)

PGE		SCG	
Arcata Area (CZ01)	1%	Arcata Area (CZ01)	0%
Blythe Area (CZ15)	0%	Blythe Area (CZ15)	3%
China Lake Area (CZ14)	0%	China Lake Area (CZ14)	2%
Fresno Area (CZ13)	7%	El Toro Area (CZ08)	24%
Los Angeles Area (CZ06)	0%	Fresno Area (CZ13)	3%
Mount Shasta Area (CZ16)	0%	Los Angeles Area (CZ06)	16%
Oakland Area (CZ03)	28%	Mount Shasta Area (CZ16)	1%
Pasadena Area (CZ09)	0%	Pasadena Area (CZ09)	35%
PG&E Territory (Weighted)	0%	San Bernardino Area (CZ10)	12%
Red Bluff Area (CZ11)	7%	San Diego Area (CZ07)	0%
Sacramento Area (CZ12)	30%	Santa Maria Area (CZ05)	2%
San Bernardino Area (CZ10)	0%	SCG Territory (Weighted)	1%
Santa Maria Area (CZ05)	1%	Sunnyvale Area (CZ04)	0%
Santa Rosa Area (CZ02)	10%	SDGE	
Sunnyvale Area (CZ04)	15%	Blythe Area (CZ15)	0%
SCE		China Lake Area (CZ14)	1%
Blythe Area (CZ15)	3%	El Toro Area (CZ08)	3%
China Lake Area (CZ14)	5%	Los Angeles Area (CZ06)	3%
El Toro Area (CZ08)	28%	Oakland Area (CZ03)	0%
Fresno Area (CZ13)	4%	Pasadena Area (CZ09)	0%
Los Angeles Area (CZ06)	18%	Red Bluff Area (CZ11)	0%
Mount Shasta Area (CZ16)	3%	San Bernardino Area (CZ10)	25%
Pasadena Area (CZ09)	24%	San Diego Area (CZ07)	68%
Sacramento Area (CZ12)	0%	SDG&E Territory (Weighted)	1%
San Bernardino Area (CZ10)	14%	Sunnyvale Area (CZ04)	0%
Santa Maria Area (CZ05)	0%		

SCE Territory (Weighted)	0%			
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Table A-6. Weightings for Average Commercial Building Types

PROGRAM	PGE 2080	PGE 2080	SCE 2511	SCE 2517	SCG 3507	SCG 3513	SDGE 3010	SDGE 3012	SDGE 3020	SDGE 3025
Measures	CFL	All other	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL
DEER Building Type										
Assembly		0.049	0.023		0.005	0.014	0.007	0.034	0.041	0.006
Education - Community College		0.006	0.018	0.001	0.003			0.001	0.002	
Education - Primary School		0.010		0.037						
Education - Secondary School		0.346	0.001	0.020	0.079	0.159	0.043	0.244	0.019	0.032
Education - University		0.006	0.000	0.008	0.082	0.008	0.010	0.022	0.002	
Grocery		0.116	0.111	0.110	0.008	0.254	0.223	0.326	0.117	0.148
Health/Medical - Hospital		0.010	0.000	0.009	0.012	0.008	0.010	0.004	0.004	0.039
Health/Medical - Nursing Home				0.003						
Lodging - Hotel		0.015		0.007						
Lodging - Motel		0.012		0.003						
Manufacturing - Bio/Tech										
Manufacturing - Light Industrial		0.015		0.314	0.646	0.263	0.182	0.154	0.181	0.200
Office - Large		0.031	0.004	0.058	0.010		0.002	0.001	0.010	
Office - Small	0.333	0.198	0.235	0.066	0.059	0.011	0.242	0.079	0.280	0.161
Restaurant - Fast- Food		0.002	0.072	0.078						
Restaurant - Sit- Down	0.333	0.038	0.069	0.059	0.086	0.274	0.034	0.058	0.038	
Retail - Multistory Large		0.001	0.076	0.035						
Retail - Single-Story Large		0.033	0.005	0.019			0.017	0.013	0.055	0.194
Retail - Small	0.333	0.060	0.374	0.052		0.006	0.118	0.039	0.129	0.148
Storage - Conditioned		0.015		0.015	0.002	0.003	0.022	0.007	0.007	0.026
Storage – Unconditioned		0.037	0.011	0.106	0.008		0.091	0.019	0.116	0.045

Table A-7.Changes in Program Savings due to UES Update by Measure Category

	% Change in kWh	% Change in kW	% Change in Therms	% of Total Portfolio Change in kWh	% of Total Portfolio Change in kW	% of Total Portfolio Change in therms
PGE2000						
CFL, 11W lamp, Integral or Modular, Tube or Spiral or Flood	16.5%	-3.9%		-0.12%	0.0%	0.0%
CFL, 13W lamp, Integral or Modular, Tube or Spiral or Flood	-14.7%	-29.8%		3.32%	4.9%	0.0%
CFL, 14W lamp, Integral or Modular, Tube or Spiral or Flood	-6.2%	-22.9%		0.08%	0.2%	0.0%
CFL, 15W lamp, Integral or Modular, Tube or Spiral or Flood	-3.9%	-20.8%		0.40%	1.6%	0.0%
CFL, 18W lamp, Integral or Modular, Tube or Spiral or Flood	-2.9%	-20.0%		0.36%	1.8%	0.0%
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	12.1%	-7.8%		-0.93%	0.4%	0.0%
CFL, 23W lamp, Integral or Modular, Tube or Spiral or Flood	-7.3%	-23.6%		4.90%	11.6%	0.0%
CFL, 24W lamp, Integral or Modular, Tube or Spiral or Flood	-2.8%	-20.1%		0.07%	0.3%	0.0%
CFL, 26W lamp, Integral or Modular, Tube or Spiral or Flood	8.1%	-10.8%		-0.18%	0.2%	0.0%
CFL, 30W lamp, Integral or Modular, Tube or Spiral or Flood	32.0%	8.7%		-0.10%	0.0%	0.0%
CFL, 40W lamp, Integral or Modular, Tube or Spiral or Flood	17.0%	-3.5%		-0.04%	0.0%	0.0%
PGE2080						
CFL, 11W lamp, Integral or Modular, Tube or Spiral or Flood	2.9%	4.5%		-0.01%	0.0%	0.0%
CFL, 13W lamp, Integral or Modular, Tube or Spiral or Flood	-25.1%	-24.0%		3.54%	3.6%	0.0%
CFL, 15W lamp, Integral or Modular, Tube or Spiral or Flood	44.1%	46.2%		-1.66%	-1.9%	0.0%
CFL, 18W lamp, Integral or Modular, Tube or Spiral or Flood	-14.0%	-12.7%		1.07%	1.0%	0.0%
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	-26.7%	-13.9%		2.10%	1.0%	0.0%
CFL, 23W lamp, Integral or Modular, Tube or Spiral or Flood	-19.1%	-17.9%		8.00%	8.1%	0.0%
CFL, 28W lamp, Integral or Modular, Tube or Spiral or Flood	-78.7%	-65.2%		3.55%	1.6%	0.0%
SCE2500						
Remove/replace freezer (conditioned/unconditioned)	-83.4%	-83.7%		2.57%	3.1%	0.0%
Remove/replace refrigerator (conditioned/unconditioned)	-81.3%	-83.5%		20.91%	23.1%	0.0%
SCE2501						
CFL, 13W lamp, Integral or Modular, Tube or Spiral or Flood	-6.9%	-30.0%		0.05%	0.3%	0.0%
CFL, 15W lamp, Integral or Modular, Tube or Spiral or Flood	-2.4%	-26.5%		0.07%	1.1%	0.0%
CFL, 18W lamp, Integral or Modular, Tube or Spiral or Flood	7.0%	-19.5%		-0.15%	0.6%	0.0%

CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	22.9%	-7.5%		-0.57%	0.3%	0.0%
CFL, 23W lamp, Integral or Modular, Tube or Spiral or Flood	0.1%	-24.7%		-0.02%	11.0%	0.0%
CFL, 25W lamp, Integral or Modular, Tube or Spiral or Flood	11.3%	-16.2%		-0.73%	1.5%	0.0%
CFL, 13W lamp, Integral or Modular, Tube or Spiral or Flood	-28.0%	-15.2%		0.52%	0.1%	0.0%
CFL, 14W lamp, Integral or Modular, Tube or Spiral or Flood	-20.8%	-6.7%		0.86%	0.1%	0.0%
CFL, 15W lamp, Integral or Modular, Tube or Spiral or Flood	-24.4%	-11.0%		1.63%	0.4%	0.0%
CFL, 18W lamp, Integral or Modular, Tube or Spiral or Flood	-21.3%	-4.2%		1.18%	0.1%	0.0%
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	-5.4%	11.8%		0.31%	-0.4%	0.0%
CFL, 23W lamp, Integral or Modular, Tube or Spiral or Flood	-22.3%	-8.3%		16.08%	3.1%	0.0%
CFL, 24W lamp, Integral or Modular, Tube or Spiral or Flood	-17.9%	-3.3%		3.80%	0.4%	0.0%
CFL, 25W lamp, Integral or Modular, Tube or Spiral or Flood	-13.4%	2.9%		2.00%	-0.2%	0.0%
CFL, 26W lamp, Integral or Modular, Tube or Spiral or Flood	-23.8%	3.7%		1.21%	-0.1%	0.0%
CFL, 30W lamp, Integral or Modular, Tube or Spiral or Flood	-46.3%	-7.5%		0.25%	0.0%	0.0%
CFL, 32W lamp, Integral or Modular, Tube or Spiral or Flood	-41.4%	1.5%		0.15%	0.0%	0.0%
SCE2511						
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	-44.6%	-43.2%		0.91%	0.9%	0.0%
CFL, 28W lamp, Integral or Modular, Tube or Spiral or Flood	-33.6%	-34.7%		0.55%	0.6%	0.0%
CFL, 9W lamp, Integral or Modular, Tube or Spiral or Flood	-65.3%	-66.4%		1.93%	2.1%	0.0%
FL, (4) 48in, T8 lamp, IS EB, RLO (BF<0.85), Lumens=9504, W/fixt=102 (Replace)	-43.6%	-29.7%		5.52%	4.1%	0.0%
FL, (3) 48in, T8 lamp, Premium IS EB, NLO (BF: .85-.95), Lumens=8019, W/fixt=83 (Replace)	-2.1%	18.3%		0.01%	-0.1%	0.0%
FL, (2) 48in, T8 lamp, Premium IS EB, NLO (BF: .85-.95), Lumens=5346, W/fixt=54 (Replace)	-48.8%	-38.5%		1.08%	1.0%	0.0%
FL, (2) 96in, T8 lamp, IS EB, RLO (BF<0.85), Lumens=8304, W/fixt=98 (Replace)	-20.0%	-5.6%		0.44%	0.1%	0.0%
FL, (4) 48in, T8 lamp, IS EB, RLO (BF<0.85), Lumens=9504, W/fixt=102 (Retrofit)	-41.5%	-31.2%		0.33%	0.3%	0.0%
SCE2517						
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	-61.8%	-54.6%		2.06%	1.4%	0.0%
CFL, 28W lamp, Integral or Modular, Tube or Spiral or Flood	-73.5%	-65.4%		0.59%	0.3%	0.0%

FL, (4) 46in, T5HO lamp, (2) Programmed Start Ballast, (BF: 1.00), Lumens=19000, W/fixt=234 (Replace)	-5.1%	-17.2%		0.44%	2.3%	0.0%
SCG3517						
High Efficiency Furnace 90 AFUE(1.11 HIR)			-18%	0.00%	0.0%	-2.5%
High Efficiency Furnace 92 AFUE(1.08 HIR)			-20%	0.00%	0.0%	-96.7%
High Efficiency Small Gas Storage Water Heater - 40 Gal , 0.62 EF			75%	0.00%	0.0%	129.1%
SDGE3012						
FL, (2) 48in, T8 lamp, Premium IS EB, NLO (BF: .85-.95), Lumens=5346, W/fixt=54 (Replace)	-52.9%	-47.2%		0.34%	0.4%	0.0%
FL, (4) 46in, T5HO lamp, (2) Programmed Start Ballast, (BF: 1.00), Lumens=19000, W/fixt=234 (Replace)	-30.7%	-18.5%		0.23%	0.2%	0.0%
SDGE3016						
CFL, 13W lamp, Integral or Modular, Tube or Spiral or Flood	-28.0%	-18.8%		0.29%	0.1%	0.0%
CFL, 14W lamp, Integral or Modular, Tube or Spiral or Flood	-20.8%	-11.7%		0.63%	0.2%	0.0%
CFL, 15W lamp, Integral or Modular, Tube or Spiral or Flood	-13.3%	-2.3%		0.41%	0.0%	0.0%
CFL, 18W lamp, Integral or Modular, Tube or Spiral or Flood	-18.0%	-8.2%		0.58%	0.1%	0.0%
CFL, 20W lamp, Integral or Modular, Tube or Spiral or Flood	-5.4%	5.9%		0.11%	-0.1%	0.0%
CFL, 23W lamp, Integral or Modular, Tube or Spiral or Flood	-22.3%	-12.8%		3.47%	1.1%	0.0%
CFL, 25W lamp, Integral or Modular, Tube or Spiral or Flood	-13.4%	-2.6%		0.07%	0.0%	0.0%
CFL, 26W lamp, Integral or Modular, Tube or Spiral or Flood	-8.7%	2.2%		0.19%	0.0%	0.0%
CFL, 30W lamp, Integral or Modular, Tube or Spiral or Flood	11.4%	24.5%		-0.07%	-0.1%	0.0%
CFL, 65W lamp, Integral or Modular, Tube or Spiral or Flood	-14.9%			0.03%	-0.1%	0.0%
SDGE3020						
FL, (2) 48in, T8 lamp, Premium IS EB, NLO (BF: .85-.95), Lumens=5346, W/fixt=54 (Retrofit)	-64.7%	-59.3%		5.38%	6.0%	0.0%
SDGE3024						
High Efficiency Furnace 92 AFUE(1.08 HIR)			6%	0.00%	0.0%	2.0%
High Efficiency Small Gas Storage Water Heater - 40 Gal , 0.62 EF			97%	0.00%	0.0%	68.1%

Table A-8. Targeted Measure Groups

Program	Measure Group	Contract Group
PGE2000R	Res Appliances	Residential Retrofit
PGE2000R	Res Appliances Recycling	Residential Retrofit

Program	Measure Group	Contract Group
PGE2000R	Res Duct seal and AC tuneup	Residential Retrofit
PGE2000R	Res Exterior lighting	Residential Retrofit
PGE2000R	Res Heating	Residential Retrofit
PGE2000R	Res Interior lighting	Residential Retrofit
PGE2000R	Res Interior screw lighting	Residential Retrofit
PGE2000R	Res Opaque Shell	Residential Retrofit
PGE2001	C&I Heating	PG&E Agricultural and Food Processing Program
PGE2001	C&I Process	PG&E Agricultural and Food Processing Program
PGE2004	C&I Heating	PG&E Fabrication, Process, and Manufacturing Programs
PGE2004	C&I Process	PG&E Fabrication, Process, and Manufacturing Programs
PGE2080	C&I Cooling	Small Commercial
PGE2080	C&I Duct seal and AC tuneup	Small Commercial
PGE2080	C&I Glazing and skylights	Small Commercial
PGE2080	C&I Interior lighting	Small Commercial
PGE2080	C&I Interior screw lighting	Small Commercial
PGE2080	C&I Process	Small Commercial
PGE2080	C&I Refrigeration	Small Commercial
SCE2500	Res Appliances Recycling	Residential Retrofit
SCE2501	C&I Interior screw lighting	Residential Retrofit
SCE2501	Res Cooling	Residential Retrofit
SCE2501	Res Interior lighting	Residential Retrofit
SCE2501	Res Interior screw lighting	Residential Retrofit
SCE2502	Res Duct seal and AC tuneup	Residential Retrofit
SCE2502	Res Exterior lighting	Residential Retrofit
SCE2502	Res Interior lighting	Residential Retrofit
SCE2510	C&I Process	Southern California Industrial/Ag Program
SCE2511	C&I Interior lighting	Small Commercial
SCE2511	C&I Interior screw lighting	Small Commercial
SCE2517	C&I Interior lighting	Major Commercial
SCE2517	C&I Interior screw lighting	Major Commercial
SCE2517	C&I Lighting controls	Major Commercial
SCE2517	C&I Process	Major Commercial
SCE2517	C&I Refrigeration	Major Commercial
SCE2517	C&I WB and custom	Major Commercial
SCG3507	C&I Process	Small Commercial
SCG3507	C&I Water heating	Small Commercial
SCG3510	Res WH controls	Residential Retrofit
SCG3513	C&I Process	Major Commercial
SCG3513	C&I WB and custom	Major Commercial
SCG3517	Res Appliances	Residential Retrofit
SCG3526	C&I Water heating	Small Commercial
SDGE3010	C&I WB and custom	Major Commercial
SDGE3012	C&I Interior lighting	Small Commercial

Program	Measure Group	Contract Group
SDGE3012	C&I Process	Small Commercial
SDGE3012	C&I Refrigeration	Small Commercial
SDGE3016	Res Interior screw lighting	Residential Retrofit
SDGE3017	Res Interior lighting	Residential Retrofit
SDGE3017	Res Interior screw lighting	Residential Retrofit
SDGE3017	Res Water heating	Residential Retrofit
SDGE3017	Res WH controls	Residential Retrofit
SDGE3020	C&I Interior lighting	Small Commercial
SDGE3020	C&I Process	Small Commercial
SDGE3024	Res Opaque Shell	Residential Retrofit
SDGE3024	Res Other	Residential Retrofit
SDGE3025	C&I Interior lighting	Major Commercial
SDGE3025	C&I Process	Major Commercial
SDGE3028	Res Appliances Recycling	Residential Retrofit
SDGE3035	Res Duct seal and AC tuneup	Residential Retrofit
SDGE3042	C&I Appliances	Small Commercial

Table A-9. Realization Rates Assigned by Program Element

Program ID	Name	Program Element	Assigned default realization rate
PGE2000	Core Mass Market RES	Midstream	1
PGE2000	Core Mass Market RES	Upstream	1
PGE2000	Core Mass Market RES	Downstream	1
PGE2004	Fabrication, Process and Heavy Industrial Manufacturing	Retrofit	0.79
PGE2004	Fabrication, Process and Heavy Industrial Manufacturing	Non Residential New Construction	1
PGE2080	Core Mass Market NRES	Non Residential	1
PGE2080	Core Mass Market NRES	Downstream	1
PGE2080	Core Mass Market NRES	Agriculture	1
PGE2080	Core Mass Market NRES	Logding / Hospitality	1
PGE2080	Core Mass Market NRES	Midstream	1
PGE2080	Core Mass Market NRES	Retail	1
PGE2080	Core Mass Market NRES	Fabrication and Heavy Industry	0.79
PGE2080	Core Mass Market NRES	Upstream	1
SCE2500	Appliance Recycling		1
SCE2501	Residential Energy Efficiency Incentives	Upstream Light	1
SCE2501	Residential Energy Efficiency Incentives	Rebate	1
SCE2501	Residential Energy Efficiency Incentives	WISE	1
SCE2501	Residential Energy Efficiency Incentives	Light Exchange	1
SCE2502	Multifamily Energy Efficiency Program	Mobile Home	1
SCE2502	Multifamily Energy Efficiency Program	Multi-family	1
SCE2511	Nonresidential Direct Installation (CRI Contractor)		1

SCE2517	Business Incentives & Services (Express Efficiency)	Audit	1
SCE2517	Business Incentives & Services (Express Efficiency)	Express	1
SCE2517	Business Incentives & Services (Express Efficiency)	SPC	0.79
scg3507	SCG3507_EXP4_EXP4-ExpressEfficiencyRebateProgram	Express Efficiency Rebate Program	1
scg3510	SCG3510_MFR4_MFR4-Multi-FamilyRebateProgram	Multi-Family Rebate Program	1
scg3513	SCG3513_NRF4_NRF4-LocalBusinessEnergyEfficiencyProgram	Non-Residential Financial Incentive Program	0.79
scg3517	SCG3517_SFR4_SFR4-HomeEfficiencyRebateProgram	Home Efficiency Rebate Program	1
sdge3010	SDGE3010_ESB_ESB-EnergySavingsBids	Energy Savings Bids	0.79
sdge3012	SDGE3012_EXP_EXP-ExpressEfficiencyRebateProgram	Express Efficiency Rebate Program	1
sdge3016	SDGE3016_LIT_LIT-UpstreamLightingProgram	Upstream Lighting Program	1
sdge3017	SDGE3017_MFR_MFR-Multi-FamilyRebateProgram	Multi-Family Rebate Program	1
sdge3020	SDGE3020_SBS_SBS-SmallBusinessSuperSaver	Small Business Super Saver	1
sdge3024	SDGE3024_SFR_SFR-SingleFamilyRebateProgram	Single Family Rebate Program	1
sdge3025	SDGE3025_SPC_SPC-StandardPerformanceProgram	Standard Performance Program	0.79
sdge3028	SDGE3028_REF_3PApplianceRecycling	EEC Appliance Recycling	1
sdge3035	SDGE3035_MHP_3PMobileHomeProgram	EEC Mobile Home Program	1